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HIGHER EDUCATION

ITS FUNCTION IN PRESERVING AND EXTENDING OUR CIVILIZATION

University Convocation Address Delivered at the Quarter Centennial Boston University, May 31, 1898

BY

W. T. HARRIS

III

THE USE OF HIGHER EDUCATION [1]

I have thought it would be appropriate on this occasion, when we celebrate the completion of a quarter-centennial by this young and vigorous university, to ask your attention to the subject of higher education and its function in preserving and extending our civilization.

Young as it is, Boston University has beheld greater changes in higher education within the epoch of its life than have been seen in any previous quarter-century since the Middle Ages.

What with the extent of our public elementary schools and the continual instruction derived throughout life from newspapers, magazines, and books, we seem to have a population of self-educated men and women. One would expect a relative decrease of attendance on the college and university. He who runs may read, and certainly the hours of leisure from business are sufficient to make the habitual reader a learned man by the time he crosses the meridian of life. In a national career full of opportunities we should expect a growing impatience of long school terms. Eight years in the elementary schools followed by four years in secondary schools, and then four years at college followed by a three-year term of postgraduate study—how can the American youth be made to undertake so much?

It is a complete surprise for us to learn the actual statistics in regard to the schooling of our people.

In 1872, the year before the founding of Boston University, the records of higher education show for the entire nation an enrollment of 590 students in each million of inhabitants—a

[1] The University Convocation address, delivered at the quarter-centennial of Boston University, May 31, 1898.

little more than one college student, on an average, for each community of two thousand population.[2]

Not only did the growth of schools for higher education keep up with the growth in population, but the enrollment increased year by year until in 1895 (twenty-three years later) instead of 590 students we had 1190 in each million. The quota had doubled, and it has since increased. And it is the more surprising when we call to mind the fact that the standard of admission to the Freshman class has been placed much higher. The élite colleges have followed the lead of Harvard for twenty-five years, and their requirements for admission demand nearly two years more than was needed fifty years ago. Even the colleges that have resisted the tendency to raise standards of admission have been obliged to yield, some more and some less. Considering the amount of work counted as higher education fifty years or even twenty-five years ago and now performed by high schools and academies, we are right in affirming that the quota receiving higher education in each million of people is three times as great as twenty-five years ago, when Boston University was founded.

But it is not numbers alone that have changed. The work performed in higher education has changed still more. In fact it is now in process of unfolding a second phase of work quite as important as that which it has performed since the beginning. To a course of study for culture—the so-called course in philosophy, the academic course in the humanities and mathematics—it has been in process of adding a course of three years of special work in the laboratory or in the seminary—the student choosing his narrow field and concentrating on it his entire attention for three years and at the end receiving a doctor's degree. This second part of the course of study in the university is a discipline in original investigation.

The student in his elementary, secondary, and the first part of the higher course of study, has been in search of culture. He has mastered one by one the several branches of human learning in their results and in the elements of their methods

[2] See Appendix I

(but certainly not in their working methods, their practical modes of investigation). Now in the second part of higher education the student selects a small field and masters it practically, not merely learning what others have done in it, but pushing his research into new fields until he can say with assurance, I have made new discoveries in a limited field of human endeavor and am become to a small extent an original authority.

Certainly this doubles the value of higher education although the new field, the field of specialization, is in no sense a substitute for the other field, that of the mastery of the lessons of human learning.

Within the short period between 1872 and 1897, the quarter-centennial of Boston University, we have seen the feeble infancy of the method of original investigation grow to a sturdy youth. The next quarter-century—and may it be as prosperous as the one just completed for this institution and for its kindred—the next quarter-century will see the youth come to a vigorous manhood and vast numbers of young men and women undertake the special investigations necessary to solve problems arising in our civilization—problems relating to material environment and problems relating to the adjustment of social, political, and international problems.

The number of students reported as engaged in post-graduate work in all our colleges and universities in 1872 was only 198. This has increased steadily, doubling once in five or six years, until in 1897 the number reached 5919. From less than 200 the post-graduates have increased to almost 5000. They are twenty-five times as numerous now as at the time Boston University was founded.[3]

Professional students, too, have increased. The number studying law, medicine, and theology in 1872 was only 280 in each million of inhabitants. In 1896 the 280 had become 740 in the million.[4]

In the same quarter of a century scientific and technical schools have multiplied. In the seven years from 1890 to 1896 the number of students in engineering and applied sci-

[3] See Appendix II

[4] See Appendix III

ence increased from 15,000 to nearly 24,000 (14,869 to 23,598).[5]

In the first days of higher education it was naturally believed that only the professional schools for law, medicine, and divinity needed a preparation in the college course. Now it is beginning to be seen that the most practical occupations, those for the procurement of food, clothing, and shelter, as well as those for the direction of social and political life, need also the studies that lead to the A. B. degree as well as the specializing post-graduate studies that lead to original combinations in industry and politics.

Post-graduate work as it was in 1872 had not fully seized the idea of original investigation. There was a dim idea that higher education should end as it had begun, namely, as a system of set lessons with text-books and recitations—post-graduate work should be a continuation of undergraduate work. The idea of the laboratory for experiment and research and of the seminary and library for original investigations in history, politics, archæology, and sociology, has developed within that time for us.

Other nations (one thinks especially of Germany) have had this for a longer period. The significance of this precious addition to our system of education will become clear if we go over for ourselves some of the grounds which make higher education more useful and productive than elementary and secondary.

There is something specific in higher education, as it exists in the college, which gives an advantage to its graduates in the way of directive power over their fellow-citizens. Elementary education is a defective sort of education, not merely because it includes only a few years of school work, but because its methods of study and habits of thought are necessarily crude and inadequate.

The elementary course of study is adapted to the first eight years of school life, say from the age of six to that of fourteen years. That course of study deals chiefly with giving the child a mastery over the symbols of reading, writing, and

[5] See Appendix IV

arithmetic, and the technical words in which are expressed the distinctions of arithmetic, geography, grammar, and history. The child has not yet acquired much knowledge of human nature, nor of the world of facts and forces about him. He has a tolerably quick grasp of isolated things and events, but he has very small power of synthesis. He cannot combine in his little mind things and events so as to perceive whole processes. He cannot perceive the principles and laws underlying the things and events which are brought under his notice. He consequently is not able to get much insight into the trend of human affairs, or to draw logical conclusions from convictions or ideas.

It is a necessary characteristic of primary or elementary instruction that it must take the world of human learning in fragments and fail to give its pupils an insight into the constitution of things. Let anyone who claims the most for the elementary methods of instruction say whether his pupils at ten years old are capable of such a comprehensive grasp of any subject as will become possible after four years more of good teaching. Let the ardent believer in scientific method say whether the child can learn at twelve years to make allowance for his personal equation and subtract the defects of his bodily senses from his inventory of facts of nature. Is it to be expected that a child ca free himself from prejudices, not to say superstitions, at that age; and that he can discriminate between what he actually sees and what he expects to see? It is somewhat better in the ages fourteen to eighteen.

The education of high schools, academies, and preparatory schools—what American writers call secondary schools—begins to correct this inadequacy of elementary education. The pupil begins to see things and events as parts of processes, and to understand their significance by tracing them back into their causes and forward into their results.

While elementary education fixes on isolated things, secondary education deals with the relations of things and events in groups. It studies forces and laws, and the mode and manner in which things are fashioned and events accom-

plished. To turn off from occupation with dead results and to come to the investigation of the living process of production is a great step.

Where the pupil in the elementary school studies arithmetic and solves problems in particular numbers, the secondary pupil studies algebra and solves problems in general terms, for each algebraic formula is a rule by which an indefinite number of arithmetical examples may be worked out. In geometry the secondary pupil learns the necessary relations which exist between spatial forms. In general history he studies the collisions of one nation with another. In natural science he discovers the cycles of nature's phenomena. In acquiring foreign languages he studies the variations of words to indicate relations of syntax; he becomes acquainted with the structure of language, in which is revealed the degree of consciousness of the people who made it and used it. Language reveals all this, but not to the youth of sixteen. He gets some glimpses, it is true, but it will take years for him to see as a consistent whole the character of a people as implied in its mode of speech. For to do this he must be able to subtract his personal equation again. He must be able to see how things would seem to him if he did not think them in the highly analytic English tongue, but in a language with inflections like Latin, Greek, or Sanskrit; in a language like the Chinese, where even the parts of speech are not clearly differentiated and no inflections have arisen.

But the most serious defect of secondary education is that it does not find a unity deep enough to connect the intellect and will. Hence it does not convert intellectual perceptions into rules of action. This is left for higher education. A principle of action is always a summing up of a series. Things and events have been inventoried and relations have been canvassed; the results must now be summed up; the conclusion must be reached before the will can act. If we act without summing up the results of inventory and reflection, our act will be a lame one; for the judgment will remain in suspense.

We may contrast elementary education and secondary edu-

cation with the education that comes to the illiterate from experience. He may as a locomotive engineer know all the safe and all the dangerous places on his road. He may know every tie and every rail, but in this he knows only one or two processes and their full trend. He is limited by his own individual observation. The man of books, on the other hand, has entered into the experience of others. Books have given him a knowledge of causes. He can explain his particular experience by carrying it back to its cause. In the cause he sees a common ground for the particular fact of his experience and also for the endless series of facts really present only in the experience of other men, present and past, and only possible for his experience in an endless time.

Thus even elementary and secondary education, though inferior to higher education, lift up the boy or girl above the man or woman educated only in the school of experience. They have attained that which will grow into a much broader life. They will be able to interpret and assimilate vast fields of experience when once they encounter them in life; while the illiterate is quickly at the end of his growth, and what he has learned will not assist him to learn more.

This relation of illiterate experience to elementary-school education helps us to understand the defect of elementary as compared with secondary and secondary as compared with higher education.

It is the glory of higher education that it lays chief stress on the comparative method of study; that it makes philosophy its leading discipline; that it gives an ethical bent to all of its branches of study. Higher education seeks as its first goal the unity of human learning. Then in its second stage it specializes. It first studies each branch in the light of all others. It studies each branch in its history.

A good definition of science is that it unites facts in such a way that each fact throws light on all facts within a special province and all facts throw light on each fact. Nature is first inventoried and divided into provinces—minerals, plants, animals, etc., geology, botany, zoölogy. Thus secondary education deals with the organizing of facts into subordinate

groups, while higher education undertakes to organize the groups into one group.

The first part of higher education, that for the B. A. degree —as we have said already—teaches the unity of human learning. It shows how all branches form a connected whole and what each contributes to the explanation of the others. This has well been called the course in philosophy. After the course in philosophy comes the selection of a specialty; for there is no danger of distorted views when one has seen the vision of the whole system of human learning. Higher education cannot possibly be given to the person of immature age. For the youthful mind is immersed in a sea of particulars. A college that gave the degree of bachelor of arts to students of eighteen years would give only a secondary course of education after all, for it would find itself forced to use the methods of instruction that characterize the secondary school. It would deal with subordinate groups and not with the world view. The serious tone of mind, the earnest attitude which inquires for the significance of a study to the problem of life, cannot be formed in the normally developed student from fourteen to eighteen years of age. But at eighteen years of age the problems of practical life begin to press for solution. This in itself is a reason for the demand for philosophy, or for a measure that may settle for the student the relative value of each element of experience. The youth of proper age to enter on higher education must have already experienced much of human life, and have arrived at a point where he begins to feel the necessity for a regulative principle, or a principle that shall guide him in deciding the endless questions which press upon him for settlement. He must have begun to ask himself what career or vocation he will choose for life.

Taking the youth at this epoch, when he begins to inquire for a first principle as a guide to his practical decisions, the college gives him a compend of human experience. It shows him the verdict of the earliest and latest great thinkers upon the meaning of the world. It gives him the net result of human opinion as to the trend of history. It gathers into

one focus the results of the vast labors of specialists in natural science, in history, jurisprudence, philology, political science, and moral philosophy.

If the college graduate is not acquainted with more than the elements of these multifarious branches of human learning, yet he is all the more impressed by their bearing upon the conduct of life. He sees their function in the totality, although he may not be an expert in the methods of investigation in any one of them.

For the reason that higher education makes the ethical insight its first object, its graduates hold the place, in the community at large, of spiritual monitors. They exercise a directive power altogether disproportionate to their number. They lead in the three learned professions, and they lead in the management of education of all kinds. They correct the one-sided tendencies of elementary education, and they furnish the wholesome centripetal forces to hold in check the extravagances of the numerous self-educated people who have gone off in special directions after leaving the elementary school.

Dr. Charles F. Thwing, President of Western Reserve University, a few years ago was at the pains to hit upon a novel method of comparing the college graduate with the rest of society. He took the six volumes of Appleton's *Cyclopedia of American biography* and counted the college graduates in its list of over 15,000 names. A little more than one-third of all were discovered to be college men. A safe inference was that one out of ten thousand of the population who have not had a college education training has become of sufficient note to be selected for mention in a biographical dictionary while one out of each 40 of our college men finds his place there. The chance of the college man as compared with the non-college man is as 250 to 1 to become distinguished as a public man of some sort—soldier, naval officer, lawyer, statesman, clergyman, teacher, author, physician, artist, scientist, inventor—in short, a man with directive power of some kind, able to combine matter into a new and useful form, or to combine

men in such a way as to reconcile their differences and produce a harmonious whole of endeavor.

We have already explained that the person who has merely an elementary schooling has laid stress on the mechanical means of culture—on the arts of reading, writing, computing, and the like. He has trained his mind for the acquirement of isolated details. But he has not been disciplined in comparative studies. He has not learned how to compare each fact with other facts, and still less how to compare each science with other sciences. He has not inquired as to the trend of his science as a whole, nor has he asked as to its imperfections which need correction from the standpoint of other sciences. He has not yet entertained the question as to its bearing on the conduct of life.

We would say of him that he has not yet learned the difference between knowledge and wisdom; he has not learned the method of converting knowledge into wisdom; for it is the best description of the college course of study to say that its aim is to convert knowledge into wisdom—to show how to discern the bearing of all departments of knowledge upon each.

Again, considering the permanent effects on the intellectual character, it is evident that the individual who has received only an elementary education is at great disadvantage as compared with the person who has received a higher education in the college or university, making all allowances for the imperfections of existing institutions. The individual is prone to move on in the same direction and in the same channel that he has taken under the guidance of his teacher. Very few persons change their methods after they leave school. Hence the importance of reaching the influence of the method of higher education, the method of original investigation, before one closes his school career.

It is easy to enumerate the influences of the university and see their great transforming power. Its distinguished professors, its venerable reputation, the organization of the students and teaching corps into an institutional whole, the isolation of the student from the strong ties of the home and the

home community—all these, taken together, are able to effect this change in method when brought to bear upon a young man for four years. He acquires an attitude of mind which we have already described as critical and comparative. It is at the same time conservative. He has learned to expect that the existing institution may have deeper grounds for its being than appear at first sight; while, on the other hand, the mind trained in elementary and secondary methods is easily surprised and captivated by superficial considerations and has small power of resistance against shallow critical views. It is easily swept away by a specious argument for reform, although we must admit that the duller, commonplace intellect that has received only an elementary education is apt to follow use and wont and not question the established order. It is the brighter class of minds, that stop with the elementary school, which become agitators in the bad sense of the term. The restless and discontented class of people, those who mistake revolution for reform, are recruited from the elementary ranks. But the commonplace intellect has no adaptability, or at least small power of readjustment, in view of new circumstances. The disuse of hand labor and the adoption of machine labor, for instance, find the common laborer unable to substitute brain labor for hand labor, and keep him in the path of poverty wending his way to the almshouse.

Our numerous self-educated men, of whom we are so proud, are quite apt to be persons who have never advanced beyond elementary methods. Very often they are men of great accumulations in the way of isolated scraps of information. They have memory pouches unduly developed. They lay stress on some insignificant phase of human affairs. They advocate with great vigor the importance of some local center, some partial human interest, as the chief object of all life. Not unlike them is the astronomer who opposes the heliocentric theory, and favors the claim of some planet or some satellite as the true center.

This is the crying evil with the dominance of elementary education and our swarms of self-educated men. They take the primary view of all things, and this is of necessity a

distorted view. Their theory supposes, innocently enough, that the immediate view of things shows them as they truly are. It looks at the present object out of its historic connection and fancies that it knows it, without taking into consideration the process by which it has been generated and come to be what it is. All college or university work—even the poorest specimens of it—deals more or less with the genesis of things—with their process of becoming—and sets the student into a habit of mind which is dissatisfied with the immediate aspects of things and impels him to go at once behind them to causal processes and seek to find what states and conditions preceded, and how the changes were wrought, and exactly why we have things as they are. It gets to understand the trend of things and can tell, prophetically, what is likely to come next.

This primary view of the world adopted by so many of our self-educated men—I admit them to be men of great merit, so far as good intentions and persistent industry are in question—explains why so many of these men are men of hobbies, or "fads" as they are called in the slang of the day. A hobby or fad is some fragmentary view of the world set up for the central principle of all things. It has been stated that a man with a hobby does not see his favorite subject in its just relations—does not comprehend its process of origination nor see how it implies the existence of other things. He does not understand the interdependence of all things. In contrast to him stands the old-time graduate of college, before the admission requirements had been raised. He received the first part of higher education, the culture side of it, as he does now. It gave him his view of the world. It is true that the family and the Church give to the child his view of the world, but they omit the logical connections. The child does not think out the results nor see their grounds; nor does he apply that view of the world as a measuring rod to the branches of knowledge.

Let me conclude this address by a summary of the views presented. In the college the pupil has the thought of his civilization presented to him as a practical guiding principle.

He meets it in every recitation room and in the general conduct of the institution. He finds himself in association with a large number of students all occupied upon this work of learning the regulative principles not only of human conduct but also of the world of knowledge.

The lawyer, after working years and years over his cases, comes by and by to have what is called a "legal mind," so that he sees at a glance, almost as by intuition, what the law will be in a new case. So, in the four years of college undergraduate life, the student gets an insight which enables him to decide immediately a phase of the problem of life. He forms a habit of mind which inquires constantly of each thing and event: How does this look in the light of the whole of human learning? What is the "good form" which the consensus of the scholars of the world has fixed for this? He learns at once to suspect what are called "isms" and universal panaceas as one-sided statements. The wisdom of the race begins to form a conscious element of his life.

While the first part of higher education gives this general insight into what is good form in view of the unity of human learning, the second part—that which teaches methods of original investigation—should be made accessible to all students of colleges and universities. For this purpose endowments are needed, first in the forms of fellowships which will enable the student to live comfortably while he is preparing himself for his doctor's degree. A second kind of endowment may promote research and take the form of prizes for special investigations.

The laboratories and seminaries of this post-graduate course may and do take up the practical problems of the life of the people. These are capable of immense benefit in sociology and politics, to say nothing of the industries of the people, rural and urban. The entire civil service of the United States should find employment for experts armed with methods of original investigation and with the readiness and daring to undertake the solution of problems which offer themselves perpetually in our civil life. The town council, the board of public works, the various directive powers which

manage the affairs of the State and municipality are in constant need of light, and the student of the post-graduate department of the university is the person needed to furnish by his special studies the aggregate result of the experience of the world in answering these practical and theoretical wants. In a country studying ever new political questions and questions in sociology, the student who obtains his Doctor's degree from the post-graduate course can apply his knowledge, and apply it rationally, without losing his self-possession.

Since 1880, when our census showed a population of more than fifty millions, we have ascended above the horizon of the great nations of Europe.

Henceforth we have a new problem, namely to adjust ourselves to the European unity of civilization. It is absurd to suppose that the problems of diplomacy which will arise in our relations to the states of the Old World can be solved by minds untrained in the university. For it is higher education which takes the student back to historic sources and descends from national beginnings, tracing the stream of events to the various points at which modern nations have arrested their development. Successful diplomacy is not possible without thorough knowledge of national aspirations and their historic genesis.

It is almost equally important that our home problems, social and political, shall be studied by our university specialists. Perpetual readjustment is before us. There is the new aristocracy of wealth struggling against the aristocracy of birth. To both is opposed the aristocracy of culture, the only one that is permanent. All may come into the aristocracy of culture, but it requires supreme endeavor on the part of the individuals.

With the great inventions of the age we find ourselves all living on a border land. We are brought into contact with alien nationalities and alien forms of civilization. We are forever placed in antagonism with some environment, material or spiritual, and our endeavor must perforce be to effect a reconciliation—to unite the conflicting ideas in a deeper one that conserves what is good in each. There is

no other recourse—we must look to higher education to furnish the formulæ for the solution of the problems of our national life.

We accordingly rejoice in the fact of the increasing popularity of the university in both of its functions—that of culture and that of specialization.

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APPENDIX I—Number of college students to each 1,000,000 persons in the United States (excluding professional and technical students, but including post-graduate students).

1872	590
1873	740
1874	760
1875	740
1876	720
1877	710
1878	790
1879	780
1880	780
1881	760
1882–83	740
1883–84	750
1884–85	760
1885–86	700
1886–87	710
1887–88	710
1888–89	750
1889–90	880
1890–91	930
1891–92	1020
1892–93	1080
1893–94	1140
1894–95	1190
1895–96	1220
1896–97	1210

APPENDIX II—The following table shows the number of post-graduate students in the universities and colleges of the United States each year for twenty-five years: (these are included in Appendix II).

1871–72	198
1872–73	219
1873–74	283
1874–75	369
1875–76	399
1876–77	389
1877–78	414
1878–79	465
1879–80	411
1880–81	460
1882–83	522
1883–84	778
1884–85	869
1885–86	935
1886–87	1237
1887–88	1290
1888–89	1343
1889–90	1717
1890–91	2131
1891–92	2499
1892–93	2851
1893–94	3493
1894–95	3999
1895–96	4363
1896–97	4919

APPENDIX III—Number of professional students to each 1,000,000 persons in the United States.

1872	280
1876	380
1881	440
1885–86	450
1890–91	570
1895–96	740

APPENDIX IV—Students in scientific and technical courses in the United States.

1889–90	14,869
1890–91	15,586
1891–92	17,012
1892–93	20,329
1893–94	23,254
1894–95	24,055
1895–96	23,598

From Editorial by Dr. N. M. Butler in Educational Review

Dr. Harris on the Nation's Duty and Opportunity

It is important that teachers and citizens generally should ponder some of the considerations that the war with Spain and its results force upon us. We therefore take pleasure in reproducing, in full, the important contribution to this subject made by Dr. Harris in his address given at the opening session of the National Educational Association at Washington:

It is fitting that you hold this annual session at the Capital of the Nation. You meet here at an important epoch in the history of our country. The annual census of the United States in 1880 showed for the first time an aggregate of over fifty millions of inhabitants. It was a true remark then made by one of us, in a session of the Department of Superintendence, that America had now for the first time ascended above the horizon of Europe. We had become visible to Great Britain and its peers on the Continent as a nation of equal rank, and to be taken account of in future adjustments of the powers of the world. In that year we had reached the full stature of national manhood, and were as strong as the strongest nations of Europe in numbers and wealth-producing power. After another ten years, in 1890, we found that in effective size and strength we surpassed, in wealth-producing power and in numbers, the most powerful of them.

It has been only a question of time when we should take our place among the nations and have our share in the management of the affairs of the world; when we should be counted with the great powers of Europe in the government of Asia, Africa, and the isles of the sea. It was a moment to be postponed rather than hastened by the patriotic citizen. When our power of producing wealth is increasing out of proportion with the rest of the world, and when our population is swelled by waves of migration from Europe, why should we be in feverish haste to precipitate the new era of close relationship with the states of Europe? for that lies beyond the parting of the ways and the beginning of an essentially new career. Most of what is old and familiar to us must change and give place to new interests. Once the United States enters upon this career, all its power and resources must be devoted to adapting it to the new situation and defending its line of advance. For it cannot move back without national humiliation.

And it is this very summer that the hand on the dial of our history has pointed at twelve, and for better or worse we have entered upon our new epoch as an active agent in the collected whole of great powers that determine and fix the destiny of the peoples on the planet. This new era is one of great portent to the statesmen of America. All legislation hereafter must be scrutinized in view of its influence upon our international relations. We cannot any longer have that smug sense of security and isolation which has permitted us to legislate without considering the effect of our action on foreign nations. Hereafter our chief national interest must be the foreign one, and consequently our highest studies must be made on the characters,

inclinations, and interests of foreign powers. It is obvious that this study requires a greater breadth of education, more careful studies in history and in the manners and customs of European nations; their methods of organizing industries as well as their methods of organizing armies and navies. We must even master foreign literatures, and see what are the fundamental aspirations of the people who read them. All this study concerns the system of education in this country. It indicates the function of the schoolmaster in the coming time.

The new burden of preparing our united people for the responsibilities of a closer union with Europe and for a share in the dominion over the islands and continents of the Orient—this new burden will fall on the school systems in the several States, and more particularly on the colleges and universities that furnish the higher education. For it is higher education that must direct the studies in history and in the psychology of peoples which will provide our ministers and ambassadors abroad their numerous retinues of experts and specialists thoroughly versed in the habits and traditions of the several nations. The knowledge required by our members of Congress and our executive departments will make a demand upon higher education for post-graduate students who have concentrated their investigations upon points in international law and the philosophy of history. Diplomacy will become a great branch of learning for us.

This has been felt for some time, although it has not been consciously realized. In the past twenty-five years the enrollment in higher education, in college work alone, has increased from 590 to 1210 in the million; it has more than doubled in each million of people. The post-graduate work of training experts or specialists has been multiplied by 25; for it has increased from a total of 200 to a total of 5000 in the nation.

The education of the elementary school fits the citizen for most of his routine work in agriculture, manufactures, commerce, and mining. But the deeper problems of uniting our nation with the other great nations, and harmonizing our unit of force with that greater unit, must be solved by higher education, for it alone can make the wide combinations that are necessary. Shallow elementary studies give us the explanation of that which lies near us. They help us to recognize our immediate environment, but for the understanding of deep national differences and for the management of all that is alien to our part of the world, deeper studies are required. The student must penetrate the underlying fundamental principles of the world history in order to see how such different fruits have grown on the same tree of humanity. We must look to our universities and colleges for the people who have learned to understand the fashions and daily customs of a foreign people, and who have learned to connect the surface of their everyday life with the deep national principles and aspirations which mold and govern their individual and social action. Hence the significance of this epoch in which we are assembled to discuss the principles of education and its methods of practice. There have been great emergencies, and great careers have opened to American teachers, in our former history; but we stand to-day on the vestibule of a still more important time-period: it is the era of the union of the New World with the Old World.